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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/047,423	01/15/2002	Gregory E. Knoblauch	47271-01002	2474
25928	7590	03/16/2005	EXAMINER	
CHRISTOPHER J. KULISH, ESQ HOLLAND & HART LLP P. O. BOX 8749 DENVER, CO 80201-8749			STREGE, JOHN B	
			ART UNIT	PAPER NUMBER
			2625	

DATE MAILED: 03/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/047,423	Applicant(s) KNOBLAUCH ET AL.	
	Examiner John B Strege	Art Unit 2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-12 and 18-28 is/are allowed.
- 6) ☒ Claim(s) 1,7-9,16,30 and 31 is/are rejected.
- 7) ☒ Claim(s) 2-6,8,13-15 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/1/02</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. While the drawing are acceptable and all the information necessary to understand the invention is present, it is noted that the resolution is not very clear. If replacement drawings are to be submitted they should included in response to this Office Action.

Claim Objections

2. Claims 4, 8, and 13 are objected to because of the following informalities: Claim 4 recites dependency on itself, for examining purposes it will be assumed that claim 4 depends on claim 3. The word "on" (line 3 claim 8) should be changed to "one". The period at the end of line 10 (claim 13) should be removed since it is not the end of the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1,7-9,16, and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchins USPN 6,366,681 in view of Carroll et al. USPN 6,421,610 (hereinafter "Carroll").

Hutchins discloses assessing the health of plants through the use of spectral data that detects and analyzes the chlorophyll content in plant leaves (col. 1 lines 5-11).

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Specifically Hutchins discloses receiving remote imaging data on an agricultural area of interest (see figure 1, col. 3 lines 50-56 and figure 7, col. 10 lines 16-20); processing, using data related to an agricultural scene-object (the farmer's field is the scene-object), said remote imaging data on the agricultural area of interest to produce reflectance factor data on the agricultural area of interest (col. 4 lines 17-43, and col. 10 lines 20-61, spectral reflectants are read as the reflectance factor data); and using said reflectance factor data on the agricultural area of interest to produce a map for the agricultural area of interest that provides agricultural information (col. 10 lines 50-51).

Hutchins does not disclose how the "desired geographic area - i.e. a farmer's field" is arrived at thus does not explicitly disclose receiving map information that defines an agricultural area of interest, but it is obvious that the desired area must be selected to correspond to the farmers field. Carroll discloses a method that is useful for image acquisition processes involved in precision farming that gives a farmer access to the aerial images of a field to establish a vegetative index, etc. (col. 1 lines 5-11, and col. 1 lines 57-65). Carroll further discloses that a common method used for designating an area of interest involves a cursor manipulation over a representative map displayed for example on a monitor or a computer (col. 2 lines 18). Carroll improves on the conventional method by allowing the user to select an area of interest of any geographic boundary configuration, designate desired layers of data within the selected boundary, and have a single image of the selected area automatically generated and delivered in a selected medium (col. 3 lines 20-25). Carroll offers the further advantage that the final

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images are delivered almost instantaneously in digitized form over the internet to a widespread audience of potential users (col. 3 lines 5-7).

Hutchins and Carroll are analogous art because they are from the same field of endeavor of aerial imaging, specifically being useful for crop analysis.

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine Hutchins and Carroll to receive map information that defines an agricultural area of interest for which agricultural information is desired. The motivation of using Carroll's invention with Hutchins is that it would allow the farmer to obtain the aerial images of his field quickly and easily to carry out analysis of the crop health. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Hutchins and Carroll to obtain the invention of claim 1.

Regarding claim 7, Hutchins discloses the Normalized Difference Vegetation Index (col. 1 lines 38-40).

Regarding claim 8, figures 14g, 14h, and 14i of Hutchins comprise a series of change maps that indicate the change in the chlorophyll based health map (col. 14 lines 46-47).

Regarding claim 9, as discussed Carroll discloses conveying the aerial images using the internet.

Claim 16 discloses similar limitations to claim 1, thus only the differences will be addressed. Hutchins discloses that the health maps of the crops are obtained at different times (paragraph bridging cols. 13-14, and col. 14 lines 46-55) thus the process of creating the health maps are carried out at two different times. Furthermore

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Hutchins discloses that the background data is removed from the spectral data to isolate the spectral response due only to chlorophyll (as stated in the abstract) thus calibrating the images.

Regarding claims 30-31, Carroll discloses conveying over the internet an aerial map of an agricultural scene-object (col. 3 lines 1-7).

Allowable Subject Matter

5. Claim 10-12, and 18-29 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 10 and 18, none of the prior art discloses producing a green vegetation index map according to the following:

$$GVI = (RF_4^* - RF_3^*)(1 + L)F / (RF_4^* + RF_3^* + L)$$

Where $RF_4^* = RF_4 - b_{43}$;

$$RF_3^* = s_{43}RF_3;$$

Claims 11-12 are dependent on claim 10, and claims 19-24 are dependent on claim 18, thus all are allowable for the same reason.

Regarding claim 29, none of the prior art disclose producing a soil zone index (SZI) map for the agricultural area of interest according to the following

$$SZI = x [\sqrt{(RF_3^* + L/2)^2 + (RF_4^* + L/2)^2} - 0.35]$$

Where L is a soil adjustment coefficient and x is a scaling constant.

Regarding claim 25, none of the prior art discloses producing a green vegetation index map according to the following:

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$$GVI=(ID_4^*-ID_3^*)(1 + L)F/ (ID_4^*+ID_3^*+L)$$

Where $ID_4^*=ID_4-b_{43}$;

$$ID_3^* = s_{43}ID_3;$$

Claims 26-28 are dependent on claim 25, thus allowable for the same reason.

6. Claims 2-3, 5-6, and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. This holds true for claim 4 as well, if the corrections mentioned above (in the claim objection section) are made. Claims 13-15 would also be allowable if the above correction to claim 13 is made.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

USPN 6,236,907: System and method for creating agricultural decision and application maps for automated agricultural machines.

USPN 6,178,253: Method of determining and treating the health of a crop.

Contact Information

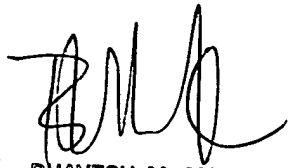
Any inquiry concerning this communication or earlier communications from the examiner should be directed to John B Strege whose telephone number is (703) 305-8679. The examiner can normally be reached on Monday-Friday between the hours of 8-5.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JS



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